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REMARKS

Claims 1, 2, 4 and new claims 7-13 are now in this application. Claims 1, 2 and 4 are rejected. Claim 3, 5 and 6 are previously cancelled.

Claim 1 is amended herein to clarify the invention, to broaden language as deemed appropriate and to address matters of form unrelated to substantive patentability issues.

Specification

The specification is objected to on the grounds that there is no antecedent basis for the steps of selecting a plurality of sets of the reference data and forming a corresponding plurality of reference model objects therefrom... and then selecting one of the plurality of reference model objects best suited for the patient. These steps are set forth in claim 1.

The Examiner's rejection is respectfully traversed in view of changes to the specification.

The specification has been amended at the paragraph bridging pages 9 and 10 to provide antecedent basis for the features of a plurality of sets of the reference data being selected, a corresponding plurality of reference model objects being formed therefrom, and one of the plurality of reference model objects best suited for the patient being selected. These features were set forth in claim 6 as originally filed so no new matter is being introduced.

In any event, it is respectfully submitted that support for these features is found in the original specification at page 9, lines 12-26 which describes steps in the method for manufacturing a patient-specific implant in accordance with the invention, including a selection of similar models being made under consideration of mathematical, functional, medical and aesthetic aspects. These similar models are made based on the data in the reference database. Then, the three-dimensional reference model 11 is selected from this range of models, preferably under particular consideration of the medical expert opinion. Moreover, the original Abstract recites that the virtual three-dimensional model of the patient is compared with real medical reference data to enable a reference model object most suited to the patient or closest to the patient model to be selected or formed and a virtual implant model is generated accordingly.

In view of the foregoing, it is respectfully submitted that the Examiner's objection to the specification is overcome and should be removed.

Claim Rejections-35 U.S.C. 102

Claims 1, 2 and 4 are rejected under 35 U.S.C. §102(b) as being anticipated by the Walker et al. reference (U.S. Pat. No. 4,936,862).

The Examiner's rejection is respectfully traversed on the grounds that Walker et al. does not disclose all of the features set forth in claim 1.

Claim 1 includes the feature of generating a virtual three-dimensional model from image data of at least the patient's implant area and the environment thereof,

comparing the virtual three-dimensional model to real medical reference data, selecting from the real medical reference data a set of reference data best suited for the patient and forming a three-dimensional reference model object therefrom, generating a virtual implant model from the three-dimensional reference model object, and manufacturing the implant by computer numeric control based on data from the virtual implant model.

An important feature of the invention is the manner in which the three-dimensional reference model object best suited for the patient is selected. Specifically, as described in the specification at page 9, lines 12-26, similar reference model objects (to the virtual three-dimensional model generated from the patient's data) are selected considering mathematical, functional, medical and aesthetic parameters. That is, characteristics of the patient are considered in selecting a plurality of reference model objects, with one of these models being ultimately selected as the reference model object which is best suited for the patient by the medical professional(s). Once the best-suited three-dimensional reference model object is determined, a virtual implant model is generated therefrom by superimposing the three-dimensional reference model object and the virtual three-dimensional model.

Walker et al. does not disclose, teach or suggest the selection of a plurality of reference model objects similar to a virtual three-dimensional model and selecting one of these reference model objects best suited for the patient for the purpose of

generating a virtual implant model by superimposing it with the virtual three-dimensional model.

Rather, Walker et al. uses tomography or radiographs to determine the size and shape of the corresponding bone when it is determined that an implant for a femur or other bone is required. In Walker et al., the first step of the method does not provide a true-to-nature model corresponding to the patient. The model obtained by Walker et al. only includes features of an average bone as being owned by other comparable human beings. Then, this model, by comparing operations, serves as a pattern design for the prosthesis. The specific features of the bone structure of the patient are not detected as in the present invention.

Since Walker et al. does not disclose a method for generating a patient-specific implant including all of the features of claim 1, it cannot anticipate the embodiment of the invention set forth in this claim or in claims 2 and 4 which depend therefrom. As such, it is respectfully submitted that the Examiner's rejection of claims 1, 2 and 4 under 35 U.S.C. §102(b) has been overcome and should be removed.

New Claims

Claims 7-13 are added.

Claims 7 and 8 depend on claim 1. Claim 7 is directed to the feature of the virtual implant model being three-dimensional as shown in Fig. 7 and described in the specification with respect thereto. Claim 8 is directed to the feature of the

selection of one of the plurality of three-dimensional reference model objects best suited for the patient being made in consideration of an expert medical opinion.

Claim 9 is a second independent claim which includes the feature of the selection of the set of reference data best suited for the patient and formation of a reference model object therefrom including the steps of first selecting a plurality of three-dimensional reference model objects similar to the virtual three-dimensional model considering mathematical, functional, medical and aesthetic parameters and then selecting one of the plurality of three-dimensional reference model objects best suited for the patient. Claims 10-13 include subject matter similar to claims 2, 4, 7 and 8, respectively. Claims 9-13 should be patentable over the Walker et al. reference for the same reasons as set forth above.

No fee is due for the presentation of new claims 7-13.

In light of the foregoing, the application is now believed to be in proper form for allowance of all claims and notice to that effect is earnestly solicited. Please charge any deficiency or credit any overpayment to Deposit Account No. 10-1250.

Respectfully submitted,

JORDAN AND HAMBURG LLP

By C. Bruce Hamburg
C. Bruce Hamburg

Reg. No. 22,389
Attorney for Applicants

by
and,

By Herbert F. Ruschmann
Herbert F. Ruschmann
Reg. No. 35,341
Attorney for Applicants

Jordan and Hamburg LLP
122 East 42nd Street
New York, New York 10168
(212) 986-2340